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GB 2200024 A GB 2191073 A GB 2121663 A

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(54) Frame assembly for plants in growing bags

(57) The frame assembly for holding canes 6 to support plants raised in growing bags 5 comprises three substantially L-shaped open-ended tubular members 1, each having an upright limb 1a and a base limb 1b. The L-shaped members are disposed in parallel spaced apart relationship. A transverse bar 3 is removably attached to the upright limb 1a of the three L-shaped members. In use, a growing bag 5 is placed over the base limbs 1b, and a cane 6 is inserted into the open end of the upright limb 1a of each L-shaped member. The portion of the upright limbs 1a above a pinched-in flattened region 4 is sufficiently long to hold the canes substantially vertically and the internal constriction formed by the top part of the pinched-in region grips the end of the canes.

In the embodiment of Figure 5, each L-shaped member comprises a U-shaped portion (7) providing a recess for rearward portion of growing bag.

Fig. 1

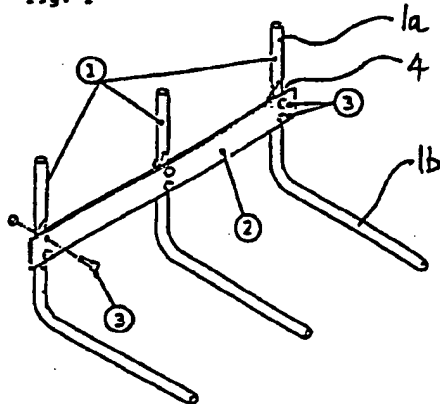
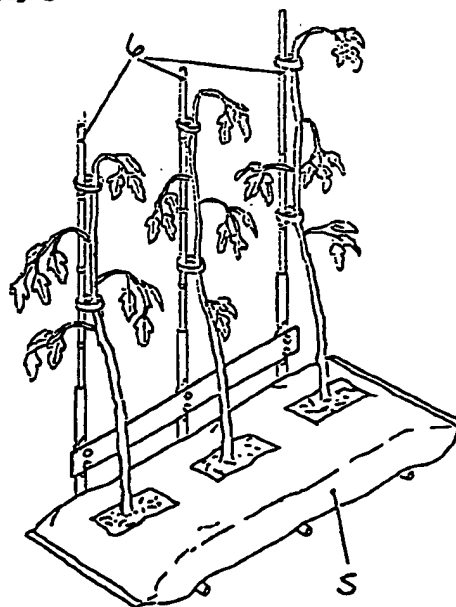


Fig. 3



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Fig. 1

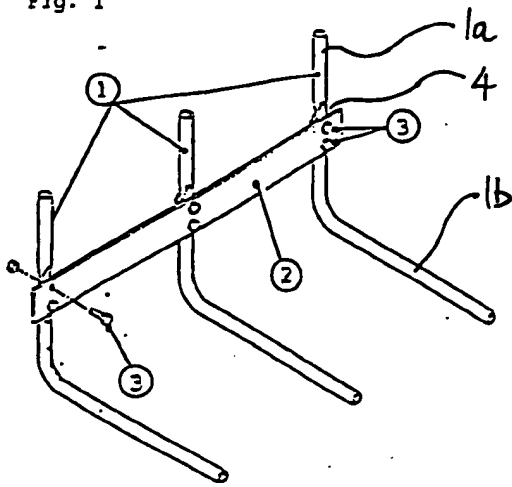


Fig. 2

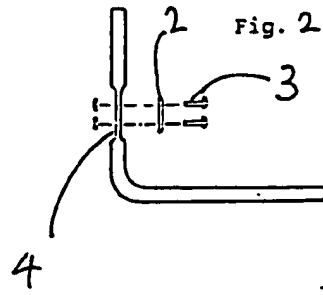


Fig. 4b

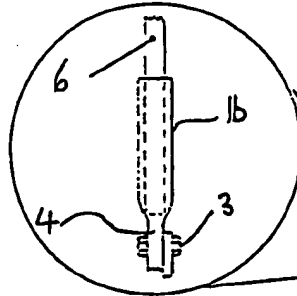


Fig. 3

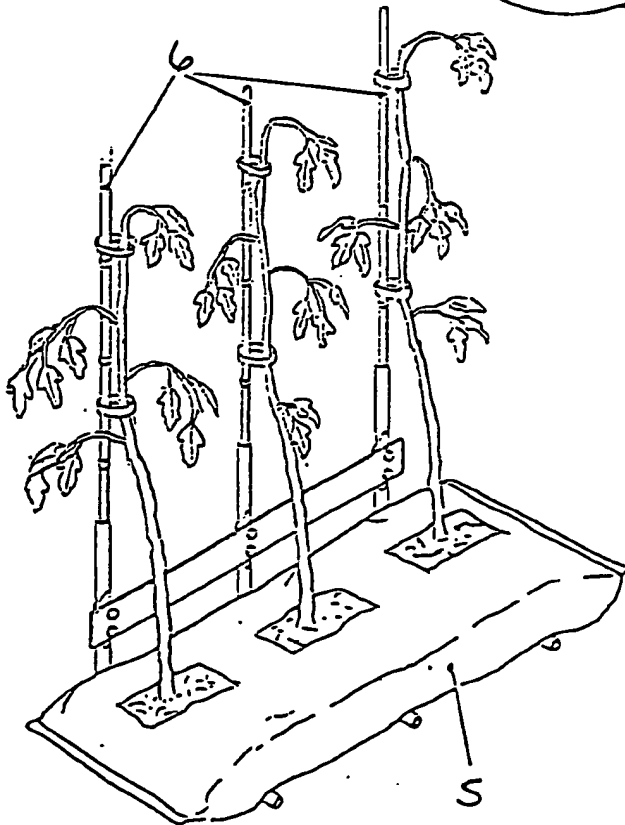


Fig. 4a

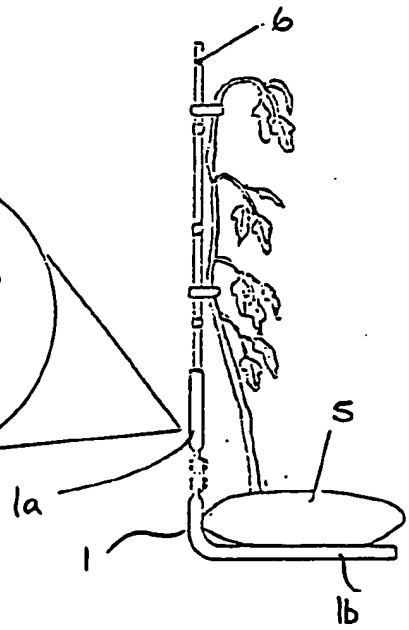
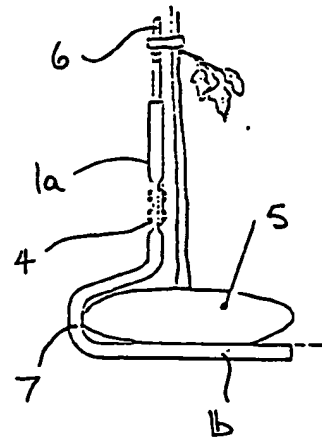


Fig. 5



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Plant Support Assembly

This invention relates to a frame assembly for holding canes to support plants, especially tall plants such as tomato plants and the like, raised in growing bags.

As used herein the term "growing bag" refers to a relatively flat, sack-like bag, usually made of a plastics material, containing a growing medium, such as peat. In use the bag is laid on the ground and plants are planted through holes or slots cut into the top face of the bag.

Nowadays growing bags are commonly used by gardening enthusiasts for raising tomatoes, courgettes, peppers and other plants. Growing bags have the advantage that they can be conveniently located in sunny places, for example on patios or balconies, or in conservatories etc.

Because growing bags tend to be used on hard surfaces such as concrete, the traditional means of supporting growing plants, namely by driving a stake into the ground, cannot be used.

According to the present invention there is provided a frame assembly for holding canes to support plants raised in growing bags, comprising three (or more) substantially L-shaped members each having an upright limb and a base limb, the L-shaped members being disposed laterally in parallel spaced apart relationship, the upright limb of each L-shaped member being adapted for holding a cane in a substantially upright position, the assembly further comprising a transverse member removably attached to the upright limb of the three L-shaped members.

The present invention provides a simple and inexpensive, yet rigid, framework which can readily be assembled and

dismantled by the user, for holding canes to support plants raised in growing bags.

For the avoidance of doubt, the term "cane" is used herein in its widest sense to cover any stick, or stake or the like which may be used for supporting plants.

Preferably the upright limb of each L-shaped member comprises an open-ended tubular section for receiving a cane. In a preferred embodiment the whole of each L-shaped member is formed from a length of open-ended tubing.

It is advantageous for the tubing or tubular section of each upright limb to have a pinched-in portion. This provides an internal constriction for gripping the end of a cane inserted therein. The cane can thus be held more firmly.

Moreover, the pinched-in portion provides on the upright limb of each of the L-shaped members an external flattened region to which the transverse member can be attached.

Suitably, the transverse member, which may be attached to the upright limb of each L-shaped member by nut and bolt fixings, is in the form of a substantially flat bar.

The transverse member may be removably attached to the upright limb of each L-shaped member by double fixings.

In a modified embodiment, each L-shaped member comprises a U-shaped portion between the upright limb and the base limb, the U-shaped portion providing a recess for accommodating a rearward portion of a growing bag. This arrangement has the advantage that it allows plants to be tied back to the support canes without constraining them from the vertical as they grow.

Embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings in which:

Figure 1 is an isometric view of a frame assembly for supporting plants in accordance with the present invention,

Figure 2 is an exploded side elevation of the frame assembly in Figure 1,

Figure 3 is an isometric view of the frame assembly in use, showing additionally a growing bag, support canes, and growing plants tied back to the canes,

Figure 4a is a side elevation of the frame assembly in use,

Figure 4b is an enlarged view of part of the frame assembly in Figure 4a, and

Figure 5 is a side elevation of a modified form of frame assembly in accordance with the present invention.

The frame assembly shown in Figure 1 comprises three substantially L-shaped members 1, each formed from a piece of light alloy tubing, with open ends, and having a cross-section of approximately 2cm. The length of the horizontal base limb 1b is chosen to be marginally greater than the width of a conventional growing bag (see Figure 5). The upright limb 1a of each L-shaped member 1 has a pinched-in portion 4 providing an external flattened region approximately 5cm long. The flattened region 4 is closer to the base limb 1b than to the open end of the upright member. The three L-shaped members 1 are disposed laterally in parallel, equally spaced relationship. The distance between the two outermost L-shaped members is less than the length of the growing bag, as can be seen most clearly in Figure 3.

The two outermost L-shaped members are thus offset from the ends of the growing bag. The three L-shaped members are joined by a transverse member 2 which is secured to the upright member 1a of each of the L-shaped members 1 by two nut and bolt fixings through holes formed in the flattened regions 4. The two holes for the nut and bolt fixings may be spaced apart vertically by approximately 3cm. The nuts and bolts are suitably galvanized to guard against rusting.

In use, a growing bag 5 is placed over the base limbs 1b, and a cane 6 is inserted into the open end of the upright limb 1a of each L-shaped member, as shown in Figures 3 and 4a. The portion of the upright limbs 1a above the flattened regions are sufficiently long to hold the canes substantially vertically and the internal constriction formed by the top part of the pinched in portion grips the end of the canes, as shown more clearly in Figure 4b.

Plants in the growing bag are tied back to the canes which thus provide support for the plants as they grow.

The weight of the growing bag and ground friction helps to prevent rotational movement of the frame assembly about a longitudinal axis of the growing bag. The double vertical fixing of each L-shaped member 1 to the horizontal bar 2 prevents rotation about a horizontal axis orthogonal to the longitudinal axis of the growing bag. Thus, with a growing bag in place, the frame assembly provides a rigid structure for holding relatively long canes to support even tall-growing plants.

A modified form of frame assembly is shown in Figure 5, in which the individual L-shaped members 1 comprise a U-shaped portion 7 between the upright limb 1a and the base limb 1b. The U-shaped portion 7 provides a recess for accommodating the rearward portion of the growing bag 5. Since the

upright limbs 1a, and hence the canes 6, are offset from the rear edge of the growing bags towards the centre thereof, this allows the plants to be tied back to the support canes 6 without constraining them from the vertical as they grow.

In view of the foregoing description it will be evident to a person skilled in the art that various modifications may be made without departing from the scope of the invention. For example, the frame assembly may comprise more than three L-shaped members. Only the top portion of the upright limbs needs to have a hollow tubular construction for receiving the canes. So, for example, the pinched-in flattened region may extend from the upright limb over the whole length of the base limb. Of course, fixings other than nuts and bolts may be used to secure the transverse bar to the L-shaped members.

CLAIMS

1. A frame assembly for holding canes to support plants raised in growing bags, comprising three substantially L-shaped members each having an upright limb and a base limb, the L-shaped members being disposed laterally in parallel spaced apart relationship, the upright limb of each L-shaped member being adapted for holding a cane in a substantially upright position, the assembly further comprising a transverse member removably attached to the upright limb of the three L-shaped members.
2. A frame assembly as claimed in claim 1, wherein the upright limb of each L-shaped member comprises an open-ended tubular section for receiving a cane.
3. A frame assembly as claimed in claim 1 or claim 2, wherein each L-shaped member is formed from an open-ended length of tubing.
4. A frame assembly as claimed in claim 2 or claim 3, wherein the tubing or tubular section of each L-shaped member has a pinched-in portion providing an internal constriction for gripping the end of a cane inserted therein.
5. A frame assembly as claimed in claim 4, wherein the pinched-in portion provides an external flattened region, the transverse member being attached to the flattened region of the upright limb of each of the L-shaped members.

6. A frame assembly as claimed in any of the preceding claims, wherein the transverse member is in the form of a substantially flat bar.
7. A frame assembly as claimed in any of the preceding claims, wherein the transverse member is removably attached to the upright limb of each L-shaped member by double fixings.
8. A frame assembly as claimed in any of the preceding claims, wherein the transverse member is attached to the upright limb of each L-shaped member by nut and bolt fixings.
9. A frame assembly as claimed in any of the preceding claims, wherein each L-shaped member comprises a U-shaped portion between the upright limb and the base limb, the U-shaped portion providing a recess for accommodating a rearward portion of a growing bag.
10. A frame assembly for holding canes to support plants raised in growing bags, substantially as herein described with reference to the accompanying drawings.

Patents Act 1977
 Examiner's report to the Comptroller under Section 17
 (The Search report)

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Relevant Technical Fields

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(ii) Int Cl (Ed.5) A01G 9/12

Search Examiner
 J M WORVELL

Date of completion of Search
 13 APRIL 1994

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii)

Documents considered relevant following a search in respect of Claims :-
 1-10

Categories of documents

- X: Document indicating lack of novelty or of inventive step. P: Document published on or after the declared priority date but before the filing date of the present application.
- Y: Document indicating lack of inventive step if combined with one or more other documents of the same category. E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.
- A: Document indicating technological background and/or state of the art. &: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages		Relevant to claim(s)
X	GB 2200024 A	(LEWIS)	1, 2 at least
X	GB 2191073 A	(BARTON)	1 at least
X	GB 2121663 A	(BOULT)	1 at least

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